

CELITE

IN

CONCRETE



**INCREASES WORKABILITY
DECREASES LABOR**

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Celite is a specially prepared form of extremely finely divided silica. Small percentages are added to concrete mixtures to increase *Workability* and insure water tightness. Being composed of practically pure silica, *Celite* does not affect the time of setting and is the most permanent ingredient in concrete mixtures. **P**

Why Celite Should Be Used in Concrete

Workability of concrete is generally attempted by the use of excess mixing water. Experimental data prove decisively that the use of excess mixing water not only fails to accomplish this purpose in a satisfactory manner, but decreases the strength of the concrete.

Workability is the most important factor in the manipulation of concrete. It is related to all of the ingredients in the mixture and affects the ultimate quality, because a concrete which can be properly mixed and placed with a minimum amount of water and labor will develop the greatest strength and durability.

Most of the faults found in field concrete can be traced directly to lack of sufficient *Workability*. Too often the blame is placed on poor materials when the trouble is actually one of *Workability*. All of the necessary elements in field concrete can be obtained by the increased *Workability* of good materials.

*Workability Means
Economy in Concrete*

To the Engineer

UNIFORM CONCRETE
WATER-TIGHT CONCRETE
STRONGER CONCRETE
DRIER CONSISTENCY AND LESS SEGREGATION
A SMOOTH SURFACE AND MORE PLEASING STRUCTURE

To the Contractor

DECREASED LABOR COSTS FOR PLACING
QUICKER DISCHARGE FROM MIXER
LESS HONEYCOMBING AND PATCHING
DECREASED COSTS

Workability cannot be accomplished by mechanical means, but must be inherent and built into the mixture.

Cellite in Concrete Means Built-in Workability

Concrete mixtures rich in cement vary less in strength than leaner ones. This is true regardless of the fact that the average strengths may be the same. The reason for this lesser variation is that the additional cement in the richer mixture is the cause of a more *Workable* mass being obtained. This prevents segregation and non-uniformity, both of which are caused by lack of plasticity, or *Workability*. The additional cement, in this way, functions in a manner entirely different from that of imparting higher average strength to the concrete. It acts as an admixture in this respect.

It has been definitely determined in tests conducted at the U. S. Bureau of Standards that *Celite* as an admixture is twice as effec-

tive as Kaolin, three times as effective as hydrated lime and five times as effective as Portland cement in producing *Workability*.

Celite has no cementing qualities and must not be substituted for cement. It accomplishes the desired purposes in a practical manner because of its light weight and extreme fineness and its ability to impart *Workability* to the concrete through simple, physical means.

Celite Increases Water-Tightness

Celite insures a water-tight concrete. Ordinary field concrete contains upwards of 20 per cent voids. The use of *Celite* decreases the size of the voids and distributes them uniformly throughout the concrete. It breaks up the minute channels, which are primarily the cause of permeable concrete. It effectively prevents the passage of water in a permanent manner, as it is chemically inert and cannot be affected by age or any destructive agency.

From the standpoint of the engineer and contractor, the use of *Celite* is consistent with the best possible practice in concreting operations. It can be used at little or no increased cost, as in ordinary concrete mixes the increased yield of finished concrete in place, due to the bulking effect of *Celite*, is sufficient to offset the cost of the *Celite* used. When, in addition to increased yield, decreased labor costs for handling and placing are considered, the use of *Celite* invariably results in a lower cost per unit of finished concrete in place.

The following proportions of *Celite* will give sufficient *Workability* to concrete to allow it to be mixed and placed with a minimum amount of water and labor:

1:1½:3 concrete—1½ to 3% by weight of the cement content
1:2:4 concrete—2 to 4% by weight of the cement content
1:2½:5 concrete—3 to 6% by weight of the cement content
1:3:6 concrete—4 to 8% by weight of the cement content

It is to your interest to be familiar with the qualities this material imparts to all concrete mixtures. Once used it will be regarded as a necessity by both engineer and contractor.

For further information, address

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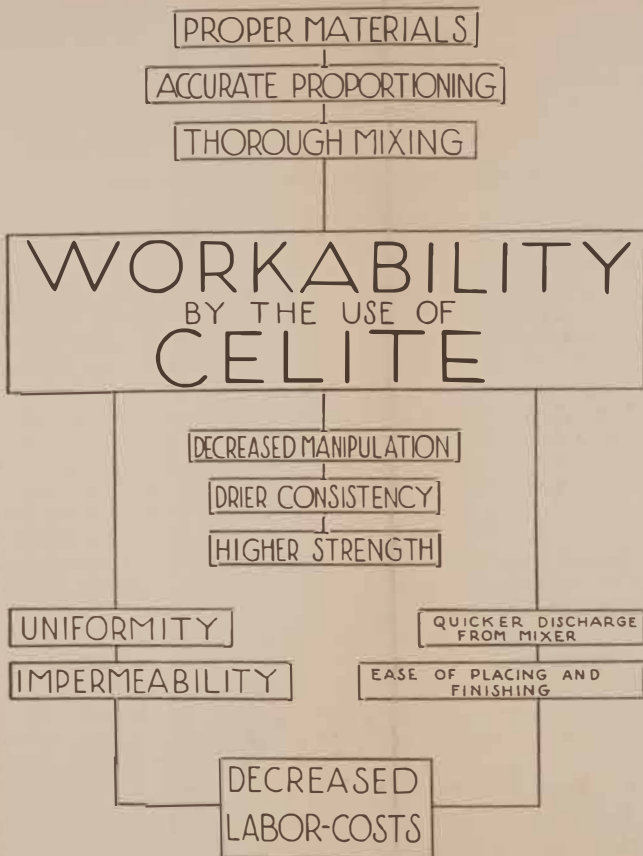
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IN PRINCIPAL CITIES

Analysis of Economic Concrete



CELITE
insures Better Concrete at Less Cost

More detailed information on Celite in Concrete is contained in Bulletin 314,
sent on request